



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of )

FRANK FICKER ) Examiner: UNKNOWN

Serial No.: 09/733,009 )

Filed: DECEMBER 8, 2000 ) Art Unit: UNKNOWN

For: A PROCESS AND AN APPARATUS FOR )  
STRETCHING TEXTILE FIBERS )

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Washington, D.C. 20231

Sir:

Please enter the following Preliminary Amendment in the above captioned application before examining the application on the merits:

**IN THE CLAIMS**

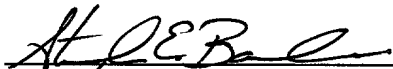
Please cancel claims 2 through 27.

The Examiner is encouraged to telephone the undersigned should he have any questions regarding this matter.

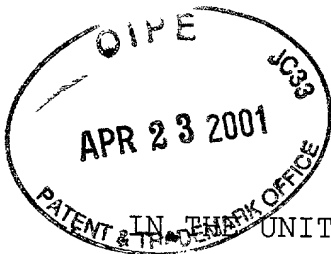
Respectfully submitted,

DORITY & MANNING, P.A.

BY:

  
Stephen E. Bondura  
Reg. No.: 35,070

P.O. Box 1449  
Greenville, SC 29602-1449  
(864) 271-1592  
FAX (864) 233-7342



ATTORNEY DOCKET NO.: S&S-99/1074a

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	
Frank Ficker	)	
	)	
Serial No.: 09/733,009	)	Examiner: Unknown
	)	
Confirmation No.: 3026	)	Art Unit: Unknown
	)	
Filed: December 8, 2000	)	
	)	
For: Process and Apparatus for	)	
Stretching Textile Fibers	)	
(as amended herein)	)	

PRELIMINARY AMENDMENT

Box Amendment  
Commissioner for Patents  
Washington, DC 20231

Sir:

Please enter the following Preliminary Amendment in the above-captioned application before examining the application on the merits:

IN THE TITLE

Please cancel the original title of the invention and substitute therefore the following new title of the invention  
--PROCESS AND APPARATUS FOR STRETCHING TEXTILE FIBERS--.

IN THE ABSTRACT

Please cancel the original abstract and substitute therefore the enclosed substitute abstract (2 copies provided).

IN THE SPECIFICATION

Please cancel the original specification and substitute

therefore the enclosed substitute specification. The original specification was a translation of the priority document and, as such, contained numerous grammatical errors, awkward syntax, and generally did not conform to standard U.S. practice. The substitute specification corrects these matters and will greatly facilitate prosecution of the application. A marked-up copy of the originally filed specification is enclosed for the Examiner's reference.

#### IN THE CLAIMS

Please cancel Claim 1. Claims 2-27 were cancelled in a previous Preliminary Amendment. Please enter new Claims 28-48 as follows:

--28. A process for providing stretching forces to textile fibers comprising the steps of:

providing fibers to be stretched;

providing at least one fluid;

guiding the fluid to the fibers to be stretched; and

entraining the fibers to be stretched with the fluid so that the fluid exerts at least a portion of the tensile force necessary to cause stretching of the fibers in a stretching direction.

29. The process for providing stretching forces to textile

fibers of Claim 28, further comprising the steps of:

moving the fibers so that certain sections of the fibers move faster than other sections of the fibers; and

entraining the fibers with the fluid at the faster moving sections.

30. The process for providing stretching forces to textile fibers of Claim 29, wherein the entraining comprises a force component in the stretching direction that causes inter-fiber cohesive forces of the fibers to be less than the total entraining tensile forces subjected to the fibers.

31. The process for providing stretching forces to textile fibers of Claim 28, further comprising the steps of:

moving the fibers so that certain sections of the fibers move faster than other sections of the fibers; and

entraining the fibers with the fluid at the slower moving sections.

32. The process for providing stretching forces to textile fibers of Claim 31, wherein at least one fluid exerts entraining force components opposite to the stretching direction.

33. The process for providing stretching forces to textile fibers of Claim 28, further comprising the steps of:

moving the fibers so that certain sections of the fibers move faster than other sections of the fibers; and

entraining the fibers such that the same fluid is used for restraining the slower fibers and for acceleration of the faster fibers.

34. The process for providing stretching forces to textile fibers of Claim 28, wherein the fluid is selected from the group consisting of water, air, and a combination of water and air.

35. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

moving the fibers so that certain sections of the fibers move faster than other sections of the fibers by restraining a section of the fibers by a force action selected from the group consisting of mechanical, pneumatic, and electrostatic forces.

36. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

carding the fibers by making at least partial use of the same fluid that is used to entrain the fibers.

37. The process for providing stretching forces to textile fibers of Claim 28, wherein before the fibers are stretched by the fluid, the fibers are put into a configuration selected from

the group consisting of fibers, fiber flocks, and a fiber band.

38. The process for providing stretching forces to textile fibers of Claim 28, further comprising the steps of:

providing a stretch chamber in which to perform the step of entraining the fibers by the fluid; and

introducing the fluid into the stretch chamber by use of an injector.

39. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

circulating the fluid in a recycle circuit.

40. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

treating the fibers with an additive for the lessening of cohesion between the fibers.

41. The process for providing stretching forces to textile fibers of Claim 28, further comprising the steps of:

providing a stretch chamber in which to perform the step of entraining the fibers by the fluid; and

providing a spinning apparatus to spin the fibers before the step of entraining the fibers by the fluid; and

circulating the fluid between the spinning apparatus and the

stretch chamber.

42. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

drying the fibers after the step of entraining the fibers by the fluid.

43. The process for providing stretching forces to textile fibers of Claim 28, further comprising the step of:

regulating the flow of the fluid.

44. An apparatus for applying stretching forces to textile fibers comprising:

a stretch chamber having an inlet and an outlet in which fibers are stretched, the fibers are moved into, through, and out of the stretch chamber;

at least one fluid supplied to the stretch chamber which moves through the stretch chamber, the force of the fluid exerts a tensile force on the fibers which acts to stretch the fibers; and

a feed entry proximate to the stretch chamber for providing the at least one fluid to the stretch chamber.

45. The apparatus for applying stretching forces to textile fibers as set forth in Claim 44, wherein the stretch chamber has a plurality of stretch chamber sections which change in diameter

in the direction of travel of the fibers.

46. The apparatus for applying stretching forces to textile fibers as set forth in Claim 44, wherein the inlet and outlet of the stretch chamber and the feed entry are provided with seals.

47. The apparatus for applying stretching forces to textile fibers as set forth in Claim 44, further comprising:

a transition hood in communication with the feed entry and the stretch chamber;

a fiber supply container in communication with the transition hood; and

a sealing arrangement that seals the transition hood and the fiber supply container.

48. The apparatus for applying stretching forces to textile fibers as set forth in Claim 44, further comprising at least one diversion vane for directing at least one of the fluids either in the same or opposite direction to the direction in which the fibers are stretched.



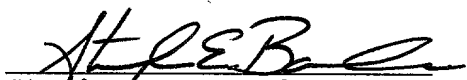
REMARKS

The present preliminary amendment will greatly facilitate prosecution of the application. New claims 28-48 more patentably define and distinctly claim the present invention.

The Examiner is encouraged to call the undersigned at his convenience to resolve any remaining issues.

Respectfully submitted,  
DORITY & MANNING, P.A.

Date 4/18/01

  
Stephen E. Bondura  
Reg. No. 35,070  
P. O. Box 1449  
Greenville, SC 29602-1449  
(864) 271-1592  
FAX (864) 233-7342

# ABSTRACT

For the stretching of textile fibers, a new process is proposed, wherein a portion of the necessary force for stretching is exerted by at least one fluid, which is brought into contact with the fibers to be stretched in such a manner that the fluid entrains the fibers and brings to bear at least a portion of the necessary tensile force for the stretching thereof.

# ABSTRACT

For the stretching of textile fibers, a new process is proposed, wherein a portion of the necessary force for stretching is exerted by at least one fluid, which is brought into contact with the fibers to be stretched in such a manner, that the said fluid entrains the fibers and brings to bear at least a portion of the necessary tensile force for the stretching thereof.